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B21B 45/06**B08B 7/00****C23C 14/02****H05H 1/32**(21) Application number: **05295527**(71) Applicant: **NIPPON STEEL CORP**(22) Date of filing: **25.11.93**(72) Inventor: **HORIE MASANOBU**(54) **LINE OF DEVICES FOR METAL SURFACE TREATMENT**

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(57) Abstract:

PURPOSE: To save the energy cost by making the heat which is generated on a material by a vacuum arc discharge device a heat source or an auxiliary heat source for the heat treatment of the material to be worked.

CONSTITUTION: The heat value generated on a material is calculated by a computer 10 from the actual value of the electric current and voltage which have been applied in arc descaling; the surface temperature of the material is measured and corrected; the result is deducted from the heat value required for a heat treatment; and the difference imparts an insufficient heat value to the material by an electric heat treatment equipment 9 through a controller 11. Since the arc heat generated for a vacuum arc descaling device 8 is utilized in the heat treatment equipment 9, the energy for the heat treatment is greatly saved. In addition, since it is performed in vacuum, the new production of oxide film is suppressed even after descaling.

